

REMARKS

Applicant appreciates the Examiner's attention to this application. The Office Action objects to FIGs. 44A-44D because of inconsistency with the Brief Description of the Drawings. This response amends the Brief Description of the Drawings to more accurately describe FIGs. 44A-44D.

The Office Action also objects to the Abstract. This response amends the Abstract, as requested.

This response also amends the specification to clarify the cross reference to the related provisional patent application. Also, this response amends FIGs. 43 and 44A-44D and corresponding parts of the Detailed Description, to correct inadvertent duplication of reference numbers and to make the drawings and the Detailed Description more consistent, as indicated above. These changes do not introduce any new matter.

Also, the Office Action indicates that claims 1-20 and 25 have been cancelled due to an election/restriction requirement, and the Office Action rejects claims 21-24 under 35 U.S.C. §§ 101, 102(e), and/or 103(a). This response amends claims 21-24, adds new claim 26, and traverses the rejections in the Office Action.

Reconsideration of the present application in view of the enclosed amendments and remarks is respectfully requested.

ARGUMENT

The Office Action includes rejections based on 35 U.S.C. §§ 101, 102(e) and 103(a). Claims 21-24 and 26 are the pending claims. Claims 21 and 26 are independent claims.

35 U.S.C. § 101

The Office Action rejects claims 21-24 under 35 U.S.C. § 101 as being directed to nonstatutory subject matter. Specifically, the Office Action asserts that the claims recite a disembodied method without reciting any relationship between the method and the means for performing the method, and that the claims therefore represent only abstract ideas. This response amends claim 21 to explicitly recite that the operation of transforming of the control graph to express a potential next state of the software system is performed by a computer. To the extent that this rejection might be applied to the claims as amended, Applicant respectfully traverses.

35 U.S.C. § 102(e)

The Office Action rejects claims 21-22 under 35 U.S.C. § 102(e) as being anticipated by U.S. patent application publication no. 2002/0078431 to Thomas W. Reps (hereinafter “Reps”). To the extent that this rejection might be applied to the claims as amended, Applicant respectfully traverses.

For a valid rejection under 35 U.S.C. § 102, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” (MPEP § 2131.01, quoting from *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).

The pending claims of the present application pertain to a method for temporally unrolling a control graph representation of a software system. In particular, claim 21 recites the operation of transforming a control graph that represents a software system at an initial state into a control graph that expresses “a potential next state of the software system.”

By contrast, Reps pertains to a “method for representing information in a highly compressed fashion” (Title). In particular, Reps pertains to a model for representing data that may be used as an alternative to ordered binary decision diagrams (OBDDs). Reps refers to this alternative model as a “CFLOBDD.” According to Reps, CFLOBDDs are “a new compressed representation of functions over Boolean-valued arguments” (Abstract). In addition, Reps discusses how to

convert a decision tree into a CFLOBDD and vice versa (paragraphs 210-218). However, Reps says nothing about temporally unrolling a control graph to express a potential next state of a software system.

The Office Action asserts that page 3, paragraph 56 of Reps discloses the operation of transforming a control graph that represents a software system at an initial state into a control graph that expresses a potential next state of the software system. However, that portion of Reps says nothing about expressing a potential next state of a software system. Instead, that portion of Reps simply refers to Figures 10 and 11, which illustrate how to convert a decision tree into a CFLOBDD and vice versa. Figures 10 and 11, and the corresponding text at paragraphs 210-218, say nothing about transforming a control graph that represents a software system at an initial state into a control graph that expresses a potential next state of the software system. Reps therefore does not anticipate claim 21.

Similarly, claim 26 recites the operation of “transforming a first control graph representation of a software system into a second control graph representation of the software system, ... wherein the first control graph representation expresses the software system at an initial state and the second control graph representation expresses the software system at a potential next state.” Reps does not disclose transforming a control graph for an initial state of a software system into a control graph for a potential next state of the software system. For reasons including those set forth above, Reps does not anticipate claim 26.

In addition, claims 22-24 depend ultimately from claim 21, and therefore implicitly include the features of claim 21. Consequently, for reasons including those set forth above, Reps does not anticipate any of the pending claims.

35 U.S.C. § 103(a)

The Office Action rejects claims 23 and 24 as being unpatentable over Reps in view of “Symbolic Boolean Manipulation with Ordered Binary-Decision Diagrams” by R. E. Bryant (hereinafter “Bryant”).

As indicated above, claims 23 and 24 implicitly include the features of claim 21. Even if Reps and Bryant were to be combined, the combination would not

render claim 21 unpatentable. Likewise, the combination would not render claims 23 and 24 unpatentable.

In addition, claim 24 recites that the operation of temporally unrolling the control graph comprises operations such as “for each delayed action node which represents a functional object ... that has a predetermined delay in responding to or producing a control interaction, (a) creating a sensing edge to connect the delayed action node to a corresponding node in the control graph representing the initial state of the system, and [b] creating an outgoing edge to connect the corresponding node in the control graph representing the initial state of the system, to a corresponding next node which represents the potential next state of the system.”

The Office Action asserts that Reps discloses the above operation at paragraphs 319-323. Those paragraphs discuss “how to perform binary operations on multi-terminal CFLOBDDs” (paragraph 318).

However, those paragraphs say nothing about expressing a potential next state of a software system. *A fortiori*, those paragraphs do not disclose the specific operations of, “for each delayed action node which represents a functional object ... that has a predetermined delay in responding to or producing a control interaction, (a) creating a sensing edge to connect the delayed action node to a corresponding node in the control graph representing the initial state of the system, and (b) creating an outgoing edge to connect the corresponding node in the control graph representing the initial state of the system, to a corresponding next node which represents the potential next state of the system.”

Consequently, even if Reps were to be combined with Bryant, the combination would not render claim 24 unpatentable.

For reasons including those set forth above, the Office Action does not establish a *prima facie* case of obviousness for any of the pending claims.

CONCLUSION

In view of the foregoing, claims 21-24 and 26 are all in condition for allowance.

If the Examiner has any questions, the Examiner is invited to contact the undersigned at (512) 732-3927. Early issuance of Notice of Allowance is respectfully requested.

Respectfully submitted,

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Amendments to the Drawings:

Two sheets of replacement drawings are attached. In the first sheet, reference number 206 in Figure 2 has been changed to 204.

In the second sheet, the following changes have been made to Figure 43:

- reference number 4312 has been changed to 4330; and
- reference number 4314 has been changed to 4332.

Also, in the second sheet, the following changes have been made to Figure 44: all four occurrences of reference number 4310 have been changed to 4311.

These changes correct inadvertent duplication of reference numbers for different illustrated features and make the drawings more consistent with the Detailed Description. These changes do not introduce any new matter. Approval and entry of these replacement drawings is respectfully requested.